2020 Annual Drinking Water System Report

Port Rowan Drinking Water System

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1. Introduction

The Corporation of Norfolk County has prepared this report to satisfy the requirements of Section 11 of Ontario Regulation (O. Reg.) 170/03. This annual report must be prepared no later than February 28 of each year.

This report covers the period from January 1, 2020 to December 31, 2020, and the information provided complies with the reporting requirements of O. Reg. 170/03 Section 11.

A summary of Port Rowan's Municipal Drinking Water System is outlined below:

Drinking Water System Number: 220000898

Drinking Water System Name: Port Rowan Drinking Water System

Drinking Water System Owner: Corporation of Norfolk County

Drinking Water System Category: Large Municipal Residential

2. Reporting Requirements under Section 11 – O. Reg. 170/03

Section 11 requires that the report include the following information relating to the period covered by the report. This includes:

- A statement of where a report prepared under Schedule 22 will be available for inspection by any member of the public during normal business hours without charge.
- A brief description of the drinking water system, including a list of water treatment chemicals used.
- Any major expenses incurred to install, repair or replace required equipment.

- A summary of any reports made to the Ministry of Environment, Conservation and Parks (MECP) for Adverse Water Quality Incidents (AWQI's).
- A summary of the results of tests performed under O. Reg. 170/03, an approval, the municipal drinking water licence or an order, including an Ontario Water Resources Act (OWRA) order.
- To describe any corrective actions taken

3. Evidence of Compliance

Availability of the Annual Report

In accordance with Section 11 O. Reg. 170/03, a copy of the annual report will be posted for each system by the end of February each year on the Norfolk County web site at norfolkcounty.ca. A Summary Report on regulatory compliance is required annually under Schedule 22 of Regulation 170/03 for each municipal drinking water system. This report summarizes any known failures to meet the requirements of the Safe Drinking Water Act, its duration and corrective measures. The reports are presented to Norfolk County Council for acceptance before March 31st each year. The reports are made available to the public in April on the Norfolk County web site noted above or by request from the Environmental Services Department. A copy of the annual report is available to the public, free of charge at the following locations as well:

185 Robinson St., Simcoe, ON

The Booth's Harbour Drinking Water system is privately operated distribution system (260049101) which receives a copy of the annual report yearly as required by Section 11 of O. Reg. 170/03.

Description of the Municipal Drinking Water System

The Port Rowan water system supplies drinking water to the communities of Port Rowan & St. Williams. The system also provides drinking water to a private distribution system, which is owned and operated by Booth's Harbour. This system services approximately 450 people, which includes a small subdivision and a Marina.

The Port Rowan system is owned by Norfolk County and the operating authority is Norfolk County's Environmental Services Department. The drinking water system,

which includes the community of St. Williams, currently serves a population of approximately 2,300.

The water distribution system includes a 1,816 m3 elevated tank, which acts as a reservoir when the system requires larger amounts of water than the WTP can supply (such as firefighting and peak flows) and also helps to maintain a constant system pressure. There are approximately 85 fire hydrants and approximately 23,500 meters of watermain and transmission main ranging in diameter from 150 mm to 300 mm. The piping material consists of Polyvinyl Chloride (PVC) and ductile iron pipe. St. Williams and Booth's Harbour are connected to the Port Rowan system by a watermain that follows the Front Road. The community of St. Williams has a booster station, which increases the system pressure and also boosts the chlorine residual if required.

Water Treatment Chemicals

The following water treatment chemicals were used during the reporting period:

- Sodium Hypochlorite
- Carbon Dioxide
- Poly Aluminum Chloride

Significant Expenses Incurred

A brief summary of the major expenses incurred during the reporting period to install, repair or replace required equipment, and value of each, is included in Table 1.

Table 1 – Summary of Expenses Incurred

Activity	Cost Incurred (2020)
Port rowan to St. Williams Watermain Replacement	$3,798,072
Port Rowan Water Treatment Plant Upgrades	$216,423
General Operations Maintenance and Repair in Water Treatment Plants and Distribution System	$114,694

4. Microbiological Testing

E. coli and Total Coliform

As per Schedule 10 of O. Reg. 170/03 – Microbiological Sampling and Testing, bacteriological tests for E. coli and total coliforms were performed weekly on the raw and treated water at the facilities and in the distribution system. The results from the 2020 sampling program for the Port Rowan Drinking Water System are shown in the table below.

Location	Number of Samples	Range of E.coli Or Fecal Results (min #)-(max #)	Range of Total Coliform Results (min #)-(max #)
Raw	53	0 - 280	0 - 36000
Treated	53	0 - 0	0 - 0
Distribution	167	0 - 0	0 - 0

Heterotrophic Plate Count (HPC)

As per Schedule 10 of O. Reg. 170/03 - Microbiological Sampling and Testing, HPC analyses are required from the treated and distribution water. HPC tests are required weekly for treated water and for twenty five percent of the required distribution system bacteriological samples. Results over 500 colonies per 1 mL may indicate a change in water quality but is not considered an indicator of unsafe drinking water. The results from the 2020 HPC sampling program for the Port Rowan Drinking Water System are shown in the table below.

Location	Number of Samples	Number of HPC Samples	Range of HPC Results (min #)-(max #)
Treated	53	53	<10 - 40
Distribution	167	60	<10 – 20

5. Chemical Testing

The Safe Drinking Water Act requires periodic testing of the water for sixty different chemical parameters. The latest results for these parameters are provided in Appendix

A. The sampling frequency varies for the different types of water systems. If the concentration of the parameter is found to be above half of the Maximum Allowable Concentration (MAC) under the Ontario Drinking Water Quality Standards, an increased testing frequency of once every three months is required by Regulation. No additional testing is required for the Port Rowan Drinking Water System.

6. Operational Monitoring

Operational checks including raw and treated water turbidity and treated and distribution free chlorine was conducted in accordance with Schedule 7 of Reg. O. 170/03.

Turbidity

The turbidity of the treated water is monitored continuously at each treatment plant; the turbidity of the raw water is checked on a weekly basis. Turbidity is measured in Nephelometric Turbidity Units (NTU). A summary of the 2020 turbidity monitoring results are provided in the table below.

Location	Number of Grab Samples	Range of Results	Unit of Measure
Turbidity Filter 1A	8760	0.01 – 0.60	NTU
Turbidity Filter 1B	8760	0.01 – 1.14	NTU
Turbidity Filter 2A	8760	0.02 – 0.74	NTU
Turbidity Filter 2B	8760	0.01 – 0.95	NTU

Chlorine Residual

In accordance with Schedule 7 of O. Reg. 170/03, free chlorine residuals in the treated water are monitored continuously at the point of entry to the distribution system at all water treatment plants and wells. The free chlorine in the water distribution system must be above 0.05 mg/L, if it is below this, it must be reported and corrective actions taken. The results from the 2020 chlorine residual monitoring program for the Port Rowan Drinking Water System are shown in the table below.

Location	Number of Grab Samples	Range of Results	Unit of Measure
Treatment Plant Chlorine Residual	8760	0.16 – 3.00	mg/L

Location	Number of Grab Samples	Range of Results	Unit of Measure
Chlorine Residual Distribution System	480	0.19 – 2.13	mg/L

7. Adverse Results

In accordance with Schedule 16 – Reporting of Adverse Test Results and Other Problems of O. Reg. 170/03, there was one Adverse Water Quality Incident (AWQI) issued for the Port Rowan Drinking Water System. The following table describes the date the adverse occurred, the parameter, the result, the corrective action taken and the corrective action date.

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
24/07/2020	Weekly Microcystin sampling results indicated an elevated level of microcystin above 1.5 ug/l in the raw water.	>1.5 in Raw Water	ug/l	Reported to the MOH and the Spills Action Centre and operations were directed to resample daily until three consecutive samples were less that 1.5 ug/l.	30/07/2020
06/08/2020	Weekly Microcystin sampling results indicated an elevated level of microcystin	>1.5 in Raw Water	ug/l	Reported to the MOH and the Spills Action Centre and operations were directed	12/08/2020

Incident Date	Parameter	Result	Unit of Measure	Corrective Action	Corrective Action Date
	above 1.5 ug/l in the raw water.			to resample daily until three consecutive samples were less that 1.5 ug/l.	
04/08/2020	Less than 0.05 mg/L chlorine residual in the distribution system at auto flushing unit.	<0.05	mg/L	Distribution system was flushed until residual was restored and bacteriological samples were taken. Results were within the Ministry of the Environment Guidelines. No further action was required.	14/08/2020

APPENDIX A: SUMMARY OF CHEMICAL RESULTS

UNDERSTANDING CHEMICAL TEST RESULTS

The following tables summarize the laboratory results of the chemical testing Norfolk County is required to complete. Different parameters are required to be tested for at different frequencies as noted below. Results are shown as concentrations with units of either milligrams per litre (mg/L) or micrograms per litre (ug/L). 1 mg/L is equal to 1000 ug/L. The Maximum Acceptable Concentration (MAC) is the highest amount of a parameter that is acceptable in Municipal drinking water and can be found in the MECP Drinking Water Standards. The Method Detection Limit (MDL) is the lowest amount to which the laboratory can confidently measure. There were no additional testing or sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

The following tables summarize the Inorganic parameters tested for during the reporting period or the most resent sample results for the Port Rowan Drinking Water System.

Port Rowan

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Antimony	11/05/2020	0.09 <MDL	ug/L	No
Arsenic	11/05/2020	0.2	ug/L	No
Barium	11/05/2020	30	ug/L	No
Boron	11/05/2020	24	ug/L	No
Cadmium	11/05/2020	0.003 <MDL	ug/L	No
Chromium	11/05/2020	0.19	ug/L	No
Lead	Exempt			
Mercury	11/05/2020	0.01<MDL	ug/L	No
Selenium	11/05/2020	0.08	ug/L	No
Sodium	11/05/2020	14.4	mg/L	No
Fluoride	11/05/2020	0.11	mg/L	
Uranium	11/05/2020	0.109	ug/L	No
Nitrite	24/02/2020 11/05/2020 24/08/2020 18/11/2020	0.003<MDL 0.003<MDL 0.003<MDL 0.003<MDL	mg/L mg/L mg/L mg/L	No No No No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Nitrate	24/02/2020 11/05/2020 24/08/2020 18/11/2020	1.21 0.987 0.073 0.752	mg/L mg/L mg/L mg/L	No No No No

The following tables summarize the Organic parameters tested for during the reporting period or the most resent sample results for Port Rowan.

Port Rowan

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
Alachlor	11/05/2020	0.02<MDL	ug/L	No
Atrazine + N-dealkylated metobolites	11/05/2020	0.01 <MDL	ug/L	No
Azinphos-methyl	11/05/2020	0.05<MDL	ug/L	No
Benzene	11/05/2020	0.32<MDL	ug/L	No
Benzo(a)pyrene	11/05/2020	0.004<MDL	ug/L	No
Bromoxynil	11/05/2020	0.33<MDL	ug/L	No
Carbaryl	11/05/2020	0.05<MDL	ug/L	No
Carbofuran	11/05/2020	0.01<MDL	ug/L	No
Carbon Tetrachloride	11/05/2020	0.17<MDL	ug/L	No
Chlorpyrifos	11/05/2020	0.02<MDL	ug/L	No
Diazinon	11/05/2020	0.02<MDL	ug/L	No
Dicamba	11/05/2020	0.20<MDL	ug/L	No
1,2-Dichlorobenzene	11/05/2020	0.41<MDL	ug/L	No
1,4-Dichlorobenzene	11/05/2020	0.36<MDL	ug/L	No
1,2-Dichloroethane	11/05/2020	0.35<MDL	ug/L	No
1,1-Dichloroethylene (vinylidene chloride)	11/05/2020	0.33<MDL		
Dichloromethane	11/05/2020	0.35<MDL	ug/L	No
2-4 Dichlorophenol	11/05/2020	0.15<MDL	ug/L	No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
2,4-Dichlorophenoxy acetic acid (2,4-D)	11/05/2020	0.19<MDL	ug/L	No
Diclofop-methyl	11/05/2020	0.40<MDL	ug/L	No
Dimethoate	11/05/2020	0.06<MDL	ug/L	No
Diquat	11/05/2020	1<MDL	ug/L	No
Diuron	11/05/2020	0.03<MDL	ug/L	No
Glyphosate	11/05/2020	1<MDL	ug/L	No
Malathion	11/05/2020	0.02<MDL	ug/L	No
MCPA	11/05/2020	0.00012<MDL	mg/L	No
Metolachlor	11/05/2020	0.01<MDL	ug/L	No
Metribuzin	11/05/2020	0.02<MDL	ug/L	No
Monochlorobenzene	11/05/2020	0.3<MDL	ug/L	No
Paraquat	11/05/2020	1<MDL	ug/L	No
Pentachlorophenol	11/05/2020	0.15<MDL	ug/L	No
Phorate	11/05/2020	0.01<MDL	ug/L	No
Picloram	11/05/2020	1<MDL	ug/L	No
Polychlorinated Biphenyls(PCB)	11/05/2020	0.04<MDL	ug/L	No
Prometryne	11/05/2020	0.03<MDL	ug/L	No
Simazine	11/05/2020	0.01<MDL	ug/L	No
Terbufos	11/05/2020	0.01<MDL	ug/L	No
Tetrachloroethylene	11/05/2020	0.35<MDL	ug/L	No
2,3,4,6-Tetrachlorophenol	11/05/2020	0.20<MDL	ug/L	No
Triallate	11/05/2020	0.01<MDL	ug/L	No
Trichloroethylene	11/05/2020	0.44<MDL	ug/L	No
2,4,6-Trichlorophenol	11/05/2020	0.25<MDL	ug/L	No
Trifluralin	11/05/2020	0.02<MDL	ug/L	No
Vinyl Chloride	11/05/2020	0.17<MDL	ug/L	No
Total Haloacetic Acid Average 21.0 ug/L	24/02/2020 11/05/2020 24/08/2020 18/11/2020	13.8 17.4 27.7 25.0	ug/L ug/L ug/L ug/L	No
THM Annual Average 49 ug/L	24/02/2020 11/05/2020	30 41	ug/L ug/L	No

Parameter	Sample Date	Result Value	Unit of Measure	Exceedance
	24/08/2020 18/11/2020	77 48	ug/L ug/L	

The following table summarizes the lead testing as set out in Schedule 15.1 of O. Reg. 170/03 during the reporting period.

Location Type	Number of Samples	Range of Lead Results (min#) – (max #)	Number of Exceedances
Plumbing	Exempt		
Distribution	None. Next required sampling is Spring 2021.		